



Parcel C Remedial Action



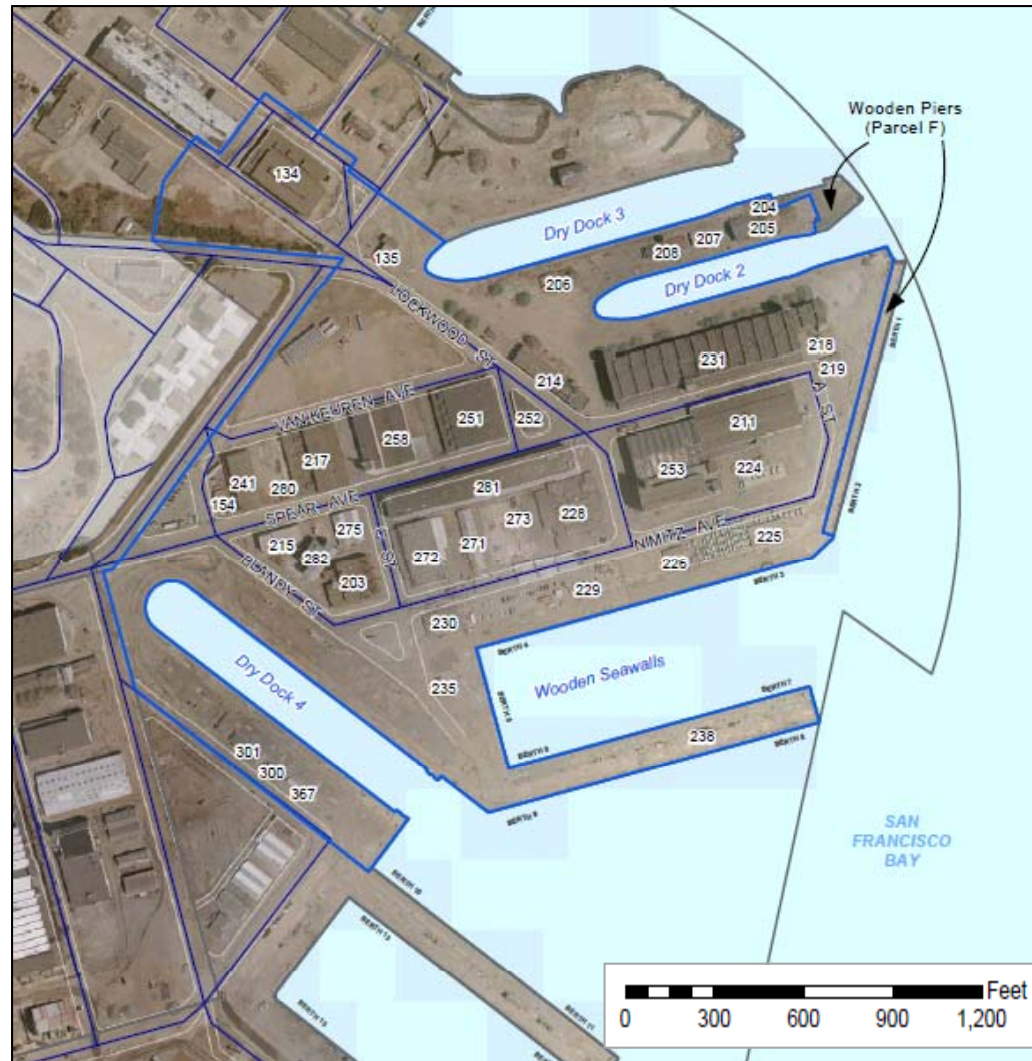
Project Update for Parcel C Hunters Point Naval Shipyard San Francisco, California

Lora Battaglia
Project Manager
Support Contractor to NAVFAC BRAC PMO
BRAC Program Management Office West

BCT Meeting, June 27, 2013

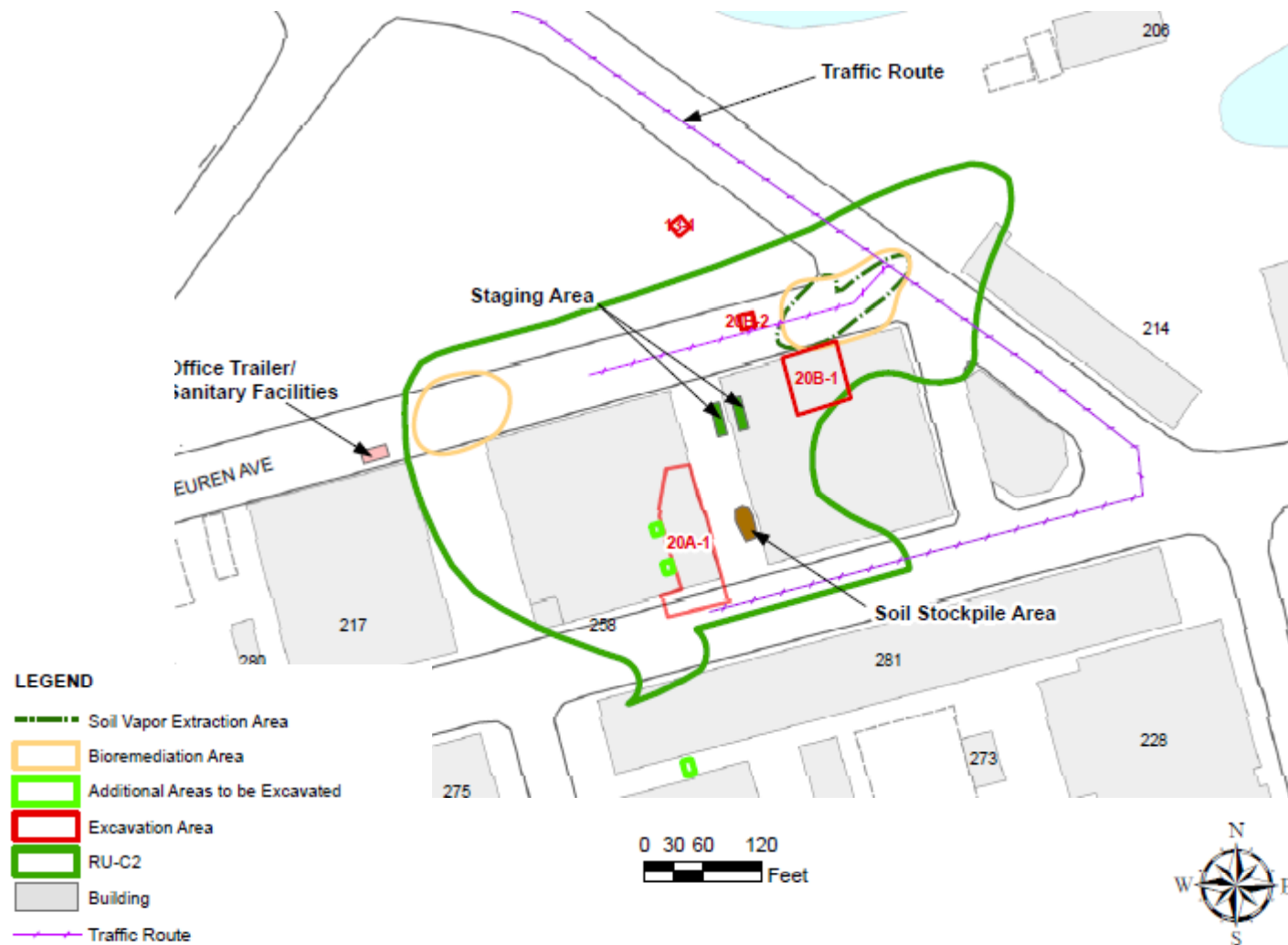


Parcel C Map





RU-C2 Map





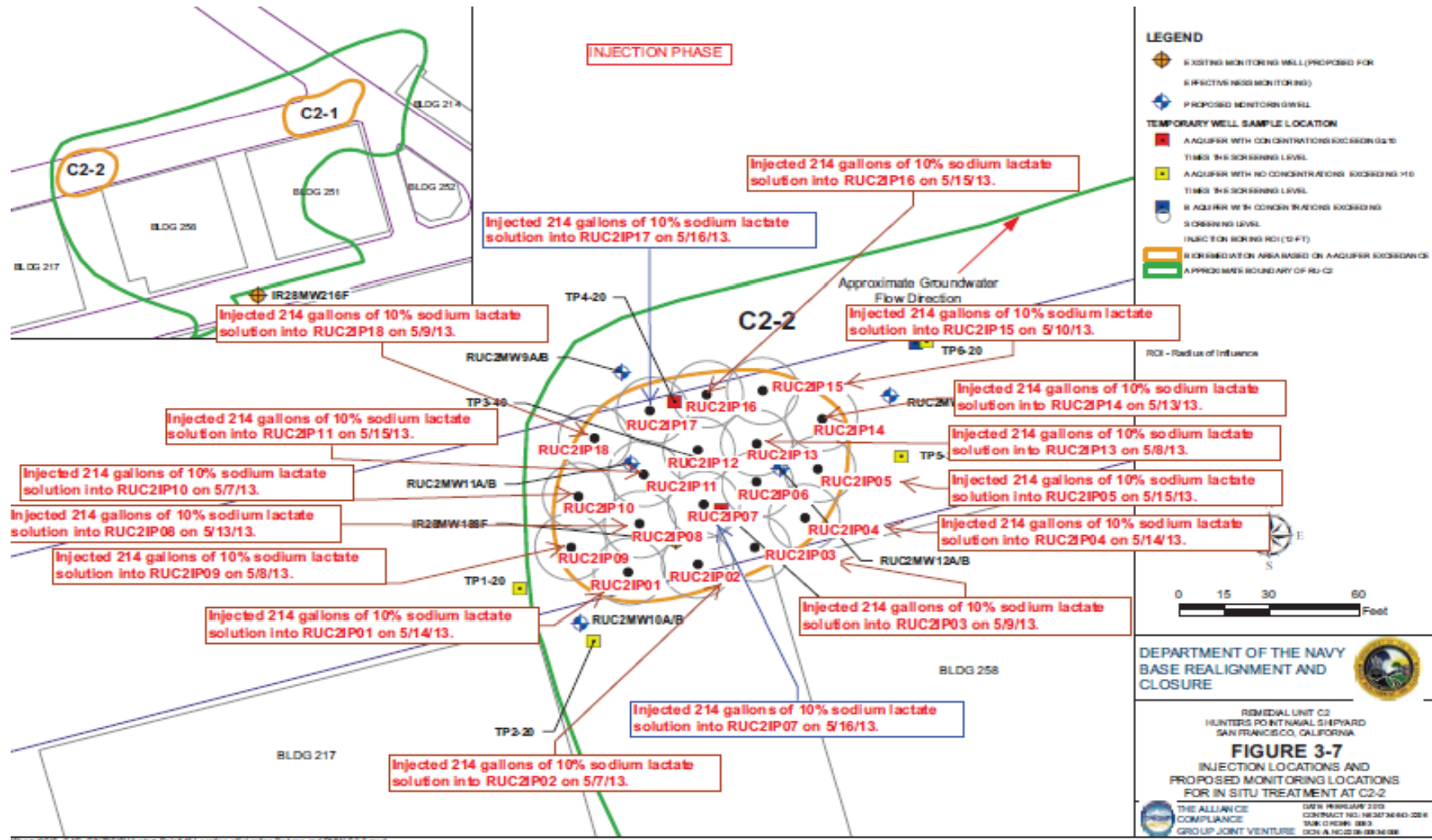
RU-C2 Update



- Decommissioned 6 temporary monitoring wells – March 2013.
- Installed 16 monitoring wells at Building 251 (C2-1 plume) and 10 monitoring wells at Building 258 (C2-2 Plume) – completed April 2013.
- Installed 5 soil vapor probes and 6 SVE wells at Building 251 (C2-1 plume) – completed April 2013.
- Finished developing all newly installed monitoring wells – completed on May 15th, 2013.
- Finished groundwater sampling at Building 258 (C2-2 plume) and Building 251 (C2-1 Plume) – completed on May 22nd, 2013.
- Installed injection wells and injected at 18 locations at Building 258 (C2-2 Plume) – completed on May 17th.
- Installed injection wells and injected lactate at Building 251 (C2-1 Plume). – Total of 23 locations – completed on June 7, 2013.

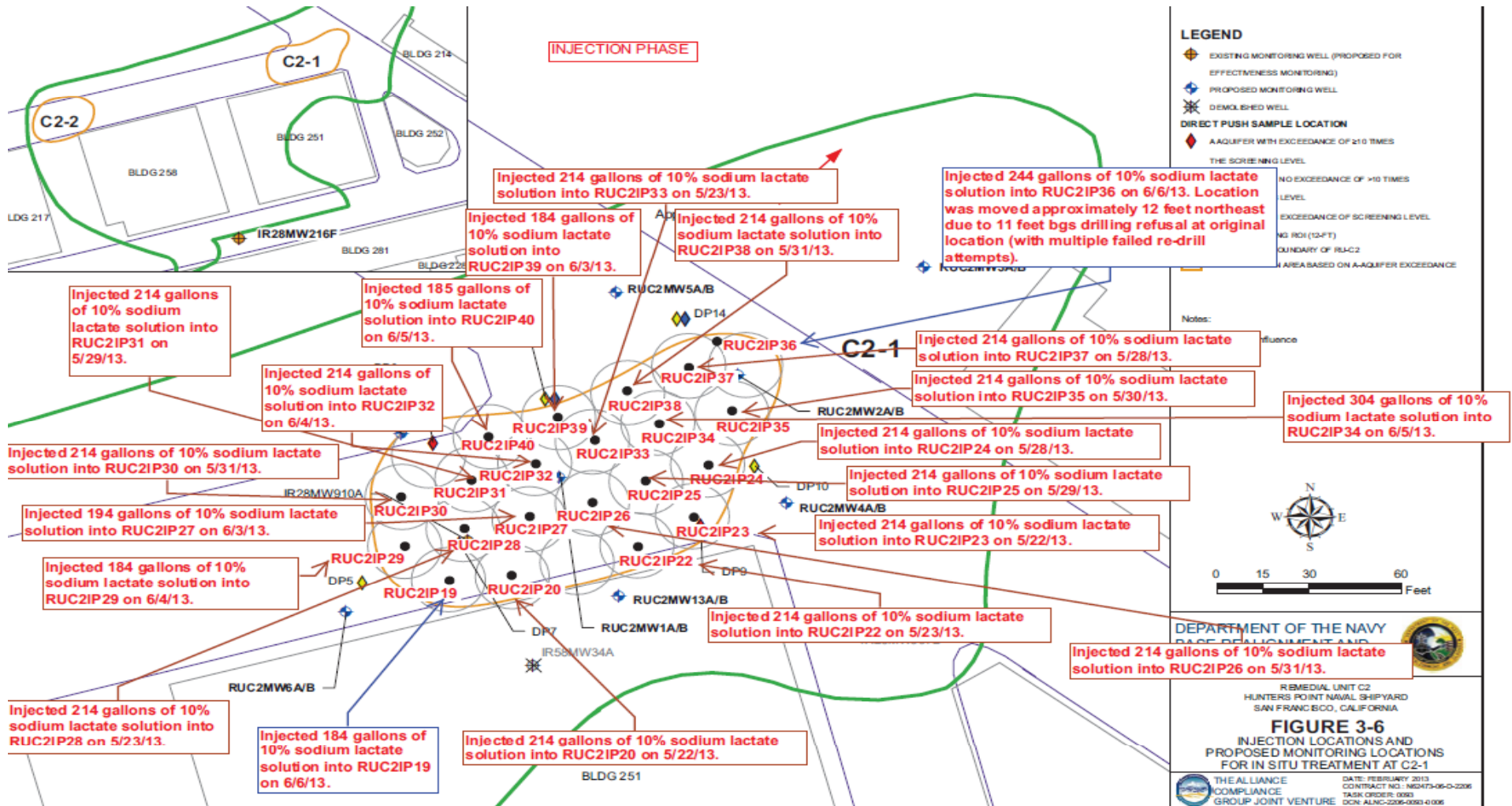


Injection Locations for In Situ Treatment at Building 258 (C2-2)





Injection Locations for In Situ Treatment at Building 251 (C2-1)





RUC2 – Lactate Injections



Injection of Lactate at Building 251 (C2-1 Plume) and 258 (C2-2 Plume).

- At each location, an injection well was installed for future bio-augmentation And future injections (if necessary).
- Injected 214 gallons of 10% lactate solution at each location (4-5 intervals).
- Injection wells were installed at 20 – 25 feet bgs (depending on field conditions), with 15-20 foot pre-packed screens.





RUC2 – Lactate Injections



Injection of lactate solution at Building 251 (C2-1 Plume)



RUC2 – Baseline Groundwater Sampling



Baseline Groundwater Sampling

- Groundwater sampling commenced on April 23rd and concluded on May 22nd.
- Sampled 10 monitoring wells (5 shallow and 5 deep) at Building 258 (C2-2 Plume).
- Sampled 17 monitoring wells (9 shallow and 8 deep) at Building 251 (C2-1) plume





RU-C2 Preliminary Groundwater Results – Building 251



Building 251 (C2-1 Plume)

Shallow Zone (A Aquifer 10-20 ft bgs)

- **TCE (2/9):** Detected at 2 locations above the PAL of 2.9 µg/L, ranging from 3.3 µg/L to 36 µg/L (MW1A).
- **PCE (4/9):** Detected at 4 locations above the PAL of 0.5 µg/L, ranging from 1.4 µg/L to 46 µg/L (MW1A).
- **Benzene (3/9):** Detected at 3 locations above the PAL of 0.5 µg/L, ranging from 0.5 µg/L to 2.1 µg/L (MW13A).
- **1,4 – Dichlorobenzene (4/9):** Detected at 4 locations above the PAL of 2.1 µg/L, ranging from 2.5 µg/L – 88 µg/L (MW13A).
- **Chlorobenzene (1/9):** Detected above the PAL of 390 µg/L at location MW13A (470 µg/L).

Deep Zone (B Aquifer – 40-50 ft bgs)

- **CT (4/7):** Detected at 4 locations above the PAL of 0.5 µg/L, ranging from 1.0 µg/L to 21 µg/L (MW13B).
- **Chloroform (3/7):** Detected at 2 locations above the PAL of 0.7 µg/L, ranging from 1.6 µg/L to 10 µg/L (MW13B).
- **PCE (6/7):** Detected at three locations above the PAL of 0.5 µg/L, ranging from 5.4 µg/L to 4,900 µg/L (MW1B).



RU-C2 Preliminary Groundwater Results – Building 258



Building 258 (C2-2 Plume)

Shallow Zone (A Aquifer 10-20 ft. bgs)

- **CT(5/6)**: Detected at four locations above the PAL of 0.5 µg/L, ranging from 1.1 µg/L to 15 µg/L (MW12A).
- **Chloroform** (3/6): Detected at four locations above the PAL of 0.7 µg/L, ranging from 1.9 µg/L to 12 µg/L (MW8A).

Deep Zone (B Aquifer 40 – 50 ft. bgs)

- **CT** (3/5): Detected at 3 locations above the PAL of 0.5 µg/L, ranging from 1.1 µg/L to 110 µg/L.
- **Chloroform** (4/5): Detected at 4 locations above the PAL of 2.9 µg/L, ranging from 4.1 to 39 µg/L (MW12B).



RU-C2 -Schedule

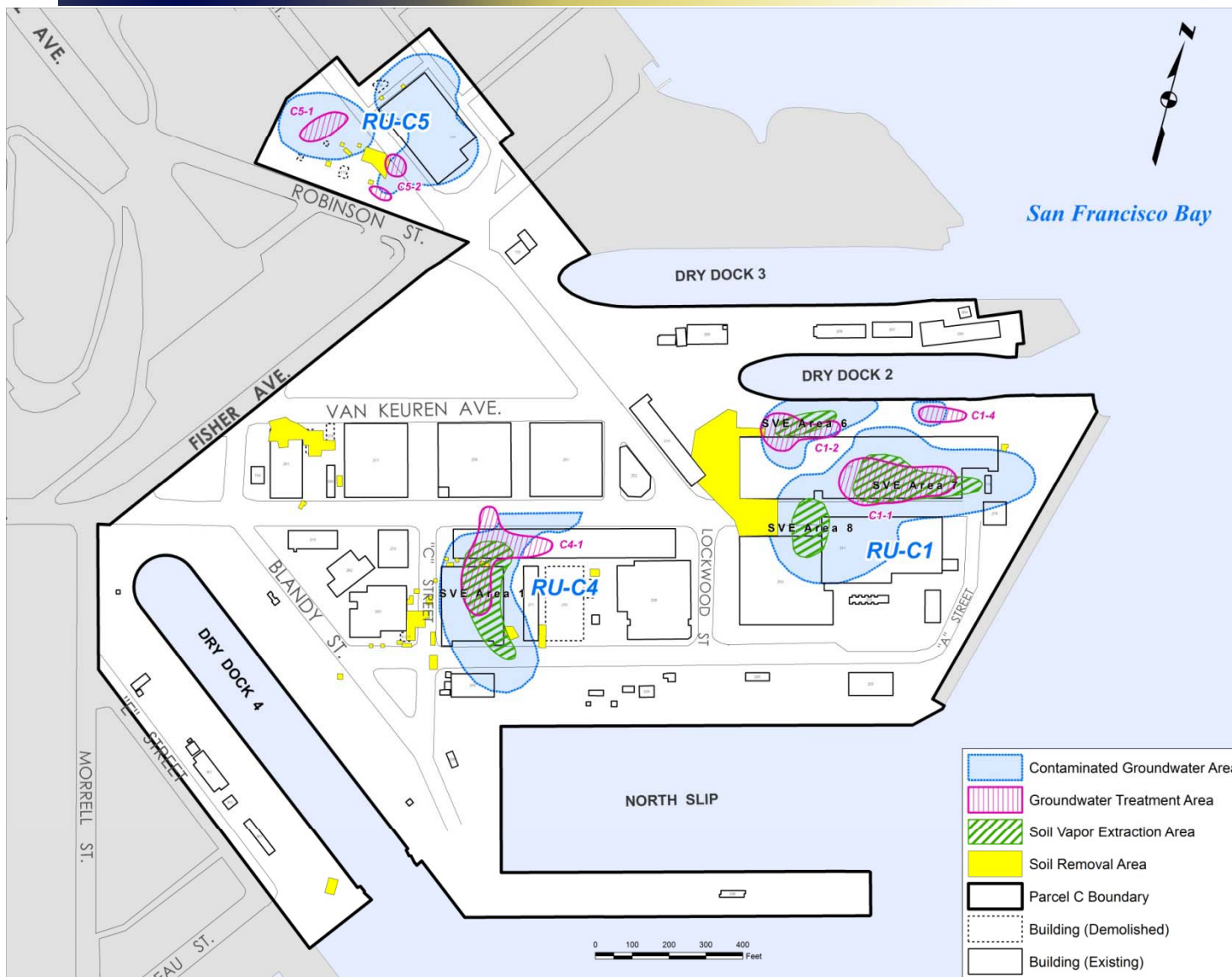


Schedule

- Monitoring well, SVE well, and soil vapor probe installation 3/18/1013 – 4/23/2013
- Baseline groundwater sampling – 4/23/2013 – 5/22/2013
- Excavations – 7/15/2013 - 8/15/2013
- Installation of SVE system – 8/15/2013
(following excavation 20B-1 which is adjacent to the SVE area)
- ISB injections 5/6/2013 – 6/7/2013
- Bio-augmentation injections – 7/09/2013-7/19/2013
(pending DO and ORP conditions)
- Groundwater sampling (1 month post injection event) – 7/19/2013
(additional events 3, 6, 9, and 12 months after injections)



Parcel C Remedial Action





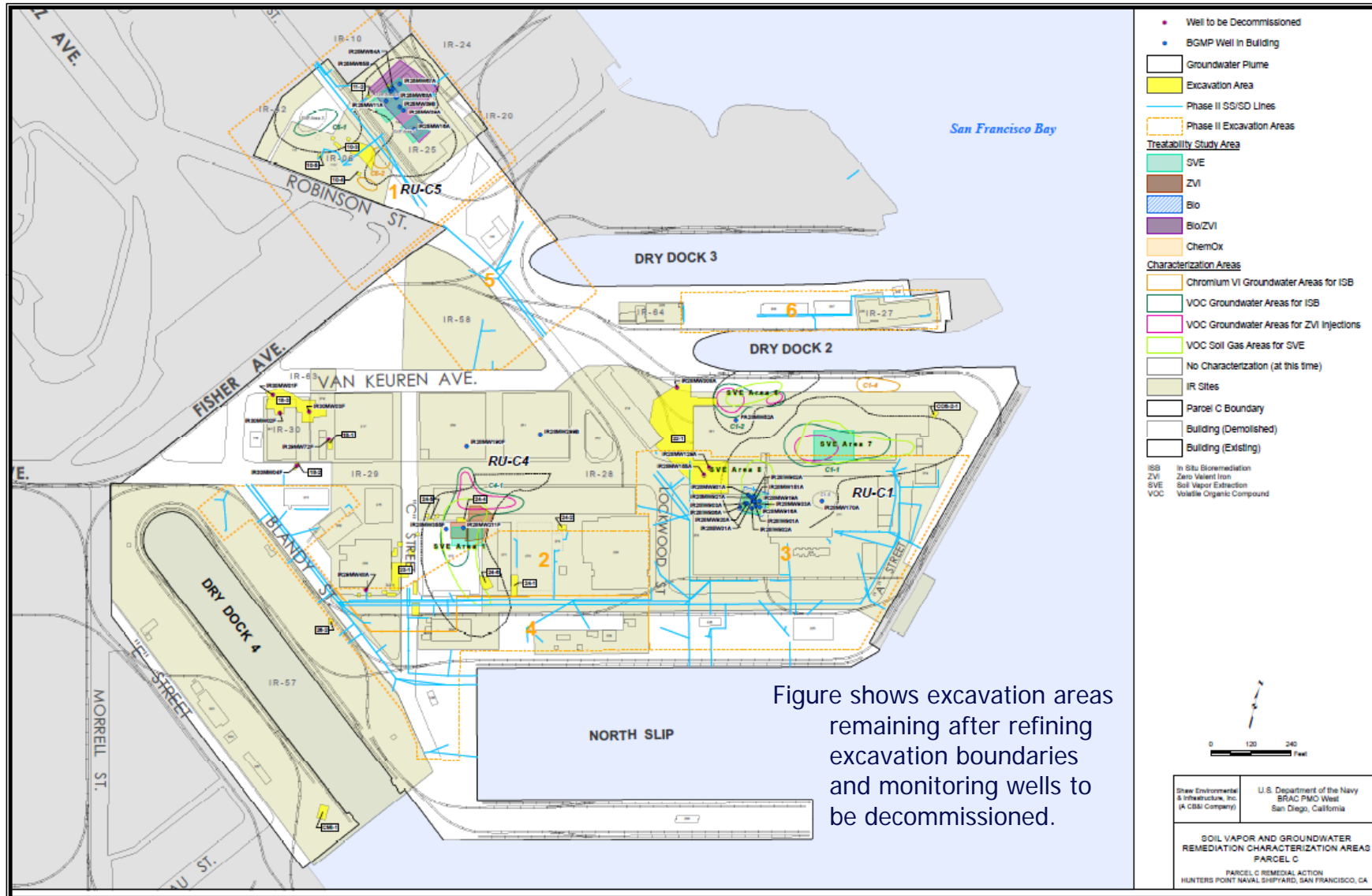
RU C-1, 4, 5 Update



- Final WP to be issued (7/3/2013)
- Mobilization to field (7/8/2013)
 - Coordination with SS/SD contractor in Parcel C: Based on radiological work completed, excavations will begin in area RU-C5
 - Work will then continue in RU-C1, and then excavations in RU-C4 and Building 241
- Site preparation and decommissioning of wells (start 7/10 thru 7/22)
- Excavation (start 7/17)
- Insitu bioremediation and ZVI injection (September)
- SVE systems installation (October)



RUs -C1, C4, C5 Activities





Sequence of Remediation Activities RUs C5, C1, and C4



1. Decommissioning of monitoring wells in excavation areas
2. Installation and development of the remedial action monitoring wells (excluding areas where excavations will occur)
3. Cleaning and capping of underground solvent pipes at Buildings 253 and 281
4. Excavation of soil in SVE and/or groundwater remediation areas
5. Excavation of soil in all other remedial areas
6. Installation and development of replacement monitoring wells and remedial action monitoring wells in excavation areas
7. Installation and sampling of SVE wells and VM wells in SVE areas



Sequence of Remediation Activities RUs C5, C1, and C4



8. Sampling of remedial action groundwater monitoring wells (baseline conditions)
9. Sampling of all SVE and soil VM wells (baseline conditions)
10. Injection of ISB substrate to be followed by ZVI
11. Collection of post-injection samples
12. Installation of SVE treatment units and piping
13. Shake down of SVE units
14. Completion of post-injection sampling in ZVI and ISB areas
15. Start Monitored Natural Attenuation



Crew using a drill rig to inject ZVI into groundwater



Durable Covers



- Durable Covers
 - New asphalt
 - Asphalt repair
 - Soil cover
- To remain in place following implementation of other elements of selected remedy
 - Metals remaining in soil exceeding RGs



Questions

